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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/672,287	09/28/2000	Keiko Matsubara	40589/DBP/Y35	8798

7590 01/11/2002

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EXAMINER

YUAN, DAH WEI D

ART UNIT	PAPER NUMBER
1745	3

DATE MAILED: 01/11/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

AS-5

<b>Office Action Summary</b>	Application No.	Applicant(s)
	09/672,287	MATSUBARA ET AL.
	Examiner Dah-Wei D. Yuan	Art Unit 1745

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) Responsive to communication(s) filed on \_\_\_\_\_.
- 2a) This action is **FINAL**.                            2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) Claim(s) 1-15 is/are pending in the application.
  - 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) Claim(s) \_\_\_\_\_ is/are allowed.
- 6) Claim(s) 1-5,7-12 and 15 is/are rejected.
- 7) Claim(s) 6,13 and 14 is/are objected to.
- 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on \_\_\_\_\_ is/are: a) accepted or b) objected to by the Examiner.
 

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) The proposed drawing correction filed on \_\_\_\_\_ is: a) approved b) disapproved by the Examiner.
 

If approved, corrected drawings are required in reply to this Office action.
- 12) The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a) All b) Some \* c) None of:
    1. Certified copies of the priority documents have been received.
    2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
    3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.
- 14) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
  - a) The translation of the foreign language provisional application has been received.
- 15) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

<ol style="list-style-type: none"> <li>1)<input checked="" type="checkbox"/> Notice of References Cited (PTO-892)</li> <li>2)<input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)</li> <li>3)<input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.</li> </ol>	<ol style="list-style-type: none"> <li>4)<input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____.</li> <li>5)<input type="checkbox"/> Notice of Informal Patent Application (PTO-152)</li> <li>6)<input type="checkbox"/> Other: _____.</li> </ol>
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**NEGATIVE ACTIVE MATERIAL FOR RECHARGEABLE LITHIUM BATTERY**  
**ELECTRODE FOR RECHARGEABLE LITHIUM BATTERY, AND METHOD OF**  
**PREPARING NEGATIVE ACTIVE MATERIAL FOR RECHARGEABLE LITHIUM**  
**SECONDARY BATTERY**

Examiner: Yuan      S.N. 09/672,287      Art Unit: 1745      January 7, 2002

***Claim Rejections - 35 USC § 102***

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

2. Claims 1-5,7,8 are rejected under 35 U.S.C. 102(e) as being anticipated by Goda et al. (US 6,004,695).

Goda et al. teach a non-aqueous secondary battery comprising a positive electrode material, a negative electrode active material and a separator. The negative electrode material mainly comprises an amorphous oxide containing at least one functional element selected from the group consisting of Sn, Mn, Fe, Pb, and Ge. The amorphous composite oxides can be synthesized by a calcination method or a solution method. Calcination is carried out preferably at temperatures of 500° to 1500°C. The resulting compound has an average particle size of 0.1 to 60  $\mu$ m. In addition to the amorphous oxide, the negative electrode material also comprises flake graphite, lithium acetate and binders. These compounds are then kneaded (to form particle-agglomerated product) in water. See Abstract; Column 12, Lines 36-60; Column 13, Lines 33-36; Column 14, Lines 21-22; Example 8.

***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1-5,7-12,15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yoneda et al. (US 5,591,547).

Yoneda et al. teach a negative electrode for a lithium secondary battery that comprises graphite as a main constituent. The graphite electrode having a copper-containing compound can generate intercalation and de-intercalation of lithium ions in the battery. Yoneda et al. teach that graphite particles, copper acetate hydrate (a fatty acid metal salt) and lithium hydroxide are first mixed in a beaker. Ion-exchange water is then added to the beaker to dissolve the metal salts. Dehydration process of the copper oxide formed on the surface of graphite particles is preferably carried out in an oxidizing atmosphere at a temperature lower than 600°C. The size of the graphite particles used to form the negative electrode is preferably not more than 80  $\mu$ m. See Abstract, Column 3, Lines 51-53; Column 4, Lines 22-42; Embodiment 2.

The disclosure of Yoneda et al. differs from Applicant's claims in that Yoneda et al. do not specifically discuss the crystallinity of the oxide formed in the particle-agglomerated product. Since Cu and Sn compounds are considered to be functionally equivalent as shown by Applicant's recitation in dependent claim 5. It would be reasonable to conclude that the copper

compound disclosed by Yoneda et al. is analogous to the claimed tin compound and both are amorphous. Therefore, it would have been obvious to one of ordinary skill in the art to produce amorphous metal compound-coated carbonaceous material as a negative electrode for a lithium secondary battery, because Yoneda et al. teach such material can be fabricated by heat treating a precursor of a fatty acid metal salt, e.g., copper acetate hydrate, and a carbonaceous material.

***Allowable Subject Matter***

6. Claims 6,13,14 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. Claims 6,14 would be allowable because the closest prior art of record, Goda et al. and Yoneda et al., do not disclose or suggest the metal compound includes one or both of SnO<sub>2</sub> or SnO. Claim 13 would be allowable because the closest prior art of record, Goda et al. and Yoneda et al., do not disclose or suggest the use of tin acetate as the fatty acid metal salt.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dah-Wei D. Yuan whose telephone number is (703) 308-0766. The examiner can normally be reached on Monday-Friday (8:00-5:00).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gabrielle Brouillette can be reached on (703) 308-0756. The fax phone numbers for

the organization where this application or proceeding is assigned are (703) 872-9310 for regular communications and (703) 872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-2340.

Dah-Wei D. Yuan  
January 9, 2002

*G.Brouillette*  
GABRIELLE BROUILLETTE  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 1700